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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,933	10/16/2003	John Gavin MacDonald	KCX-665 (19232)	4589

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DORITY & MANNING, P.A.
POST OFFICE BOX 1449
GREENVILLE, SC 29602-1449

EXAMINER	
SILVERMAN, ERIC E	
ART UNIT	**PAPER NUMBER**
1615	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/686,933	MACDONALD ET AL.	
	Examiner	Art Unit	
	Eric E. Silverman, PhD	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) *1-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 3-19-04, 3-12-04, 3-19-04, 4-23-04, 5-03-04, 6-14-04, 11-18-04, 1-19-05, 5-25-06, 12-12-06, 3-6-06, 11-2-06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicants' response to Election/Restriction, filed 12/14/2006, has been received. Applicants elected claims 31 – 47, drawn to a substrate for reducing odor. Claims 1 – 30 are withdrawn from consideration. Since Applicants have not alleged any error in the restriction requirement, the election is deemed to be **without traverse**.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recites "solids add-on level". This term is neither defined in the specification, nor known to the artisan. The artisan would therefore be incapable of determining the metes and bounds of the claimed invention.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 31, 32, 34, 38, and 43 – 47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 40, 41, 47 – 53 of copending Application No. 10/686,938. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending claims do not specify that the particle size of the nanoparticles be 1 – 50 nm, but only that they be less than 100 nm (copending claim 41). This is understood as a suggestion to reduce the size, and it would be prime facie obvious to a person of ordinary skill in the art at the time of the invention would find it obvious to use particles form 1 – 50 nm, as recited by instant claim.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 31, 32, 34, and 43 – 47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 40 - 53 of copending Application No. 10/686,938. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending claims do not specify that the particle size of the nanoparticles be 1 – 50 nm, but only that they be less than 100 nm (copending claim 41). This is understood as a suggestion to reduce the size, and it would be prime facie obvious to a person of ordinary skill in the art at the

time of the invention would find it obvious to use particles form 1 – 50 nm, as recited by instant claim.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 31, 32, 34 – 37, 38 – 42 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1 186 854 A1 to Honda et al., of record.

Honda teaches a fiber, such as string-form, or yarn-form (paragraph 0033) fibers. The fibers are impregnated with inert titanium (paragraph 0053) and coated with nanoparticles of titanium and silicon oxides (titanium oxides and silica) (paragraphs 0015 – 0016). The size of the nanoparticles is less than 20 nm (paragraph 0015), for example, 7 nm (paragraph 0054). The specific surface area is 100 – 300 square meters per gram (paragraph 0015), for example, 150 square meters per gram (paragraph 0054). Since the particle size and surface area are commensurate with those of instant claims, it is understood that the pore volume is also commensurate with that of instant claims, since the pore volume depends on the surface area and particle diameter (pores increase the surface area, so two particles having the same surface area and same size should have nearly identical pore volumes). Since the entire fiber is dipped in a coating solution of the nanoparticles (Example 1), it is understood that the fibers are completely coated. With respect to the coating thickness as claimed in claim 42, this is deemed to

be inherent. Coating the fiber does not noticeably change the size of the inert titanium particles (see example 1, where the inert titanium particle size is 0.3 μm before and after coating with nanoparticles), so the coating cannot be more than 500 nm (since a coating thicker than this would increase the size of the inert titanium to 0.4 μm after rounding). Since the nanoparticles are 7 nm in diameter, the nanoparticle coating must be at least 7 nm (a one-particle layer). It is therefore concluded that the nanoparticle coating is between 7 nm and 500 nm, within the range of claim 42.

Claims 31, 32, 35, 43, and 46 are rejected under 35 U.S.C. 102(n) as being anticipated by US 6,361,944 to Mirkin et al.

Mirkin discloses nanoparticles having DNA attached thereto (formed from an organic compound as required by instant claim 32) with diameters from 10 – 30 nm (abstract, col. 16, lines 30 – 40). The nanoparticles are deposited on a substrate, such as a filter paper (col. 20, lines 19 – 58). Note that the intended use of the claimed composition (odor reduction) is not afforded patentable weight.

Claims 31 – 33, 38 – 40 are rejected under 35 U.S.C. 102(a) as being anticipated by US 6,680,279 to Cai et al. This rejection is presented in the alternative with the rejection of the same claims under 35 U.S.C. 103(a) as unpatentable over Cai et al., *infra*.

Cai teaches coating ceramic fibers with alumina nanoparticles (example 2). The nanoparticles have a surface area of 37 square meters per gram, reading on the "about 50" recited in instant claim 31. About 3% of the resulting material is nanoparticle (w/w). The diameter of the particles can be from 50 – 150 nm, overlapping with instant range.

The void volume is 54%, and so the recited pore volume is deemed inherent. Also, platinum nanoparticles having a size of 10 – 40 nm are coated on the same fiber.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1 186 854 A1 to Honda et al., of record.

Some of the teachings of Honda are discussed above.

Honda also suggests making absorbent articles, such as cloth, from the fibers of the invention (paragraph 0071).

Honda does not actually make the absorbent articles.

It would be prime facie obvious to a person of ordinary skill in the art at the time of the invention to make absorbent articles from the fibers of Honda. The motivation comes from Honda's express suggestion to do so. Since doing so is merely following the express suggestion of the art, a person of ordinary skill in the art would have a reasonable expectation of success.

Claims 31, 32, 35, 38 – 40, 43, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/025067 to Beaverson et al., of record.

Beaverson teaches coating matrix materials with cyclodextrins and zinc nanoparticles (paragraph bridging pages 5 and 6). The zinc nanoparticles have a diameter between 10 and 250 nm (page 6, lines 3 – 9). These materials are applied as a coating that substantially covers a matrix material (page 16, lines 4 – 10). The matrix material is, in one embodiment, a "web or a layer comprising a continuous array of randomly oriented cellulosic fibers" (claim 7). This is understood to be a description of a paper article or product, thus reading on instant claims 43 and 46.

Beaverson does not require nanoparticles of the recited size ranges.

It would be prime facie obvious to a person of ordinary skill in the art at the time of the invention to use nanoparticles of the recite sizes, namely, 1 to 50 nm. This is suggested by the overlapping of instantly claimed range and the range taught in Beaverson. Since the sizes recited in the claims are included in the invention of Beaverson, the artisan would enjoy a reasonable expectation of success.

Claims 31 – 33, 38 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,680,279 to Cai et al.

The teachings of Cai are discussed above.

It is not clear whether the particle size of Cai is identical to that of instant claims.

It would be prime facie obvious to a person of ordinary skill in the art at the time of the invention to use particles of "about 50 nm" in size. The motivation comes from Cai's teaching of particles from 50 – 150 nm. Instant range is rendered obvious because it overlaps with the recited range.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric E. Silverman, PhD whose telephone number is 571 272 5549. The examiner can normally be reached on Monday to Friday 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on 571 272 8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric E. Silverman, PhD
Art Unit 1615

MICHAEL P. WOODWARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600